



Town of The Blue Mountains Facility and Equipment Asset Management Plan

April 2021

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Executive Summary

Introduction

The Town owns and operates 41 facilities, ranging from complex facilities such as water and wastewater treatment plants to seasonal park washrooms. These facilities are made up of a number of asset components (Table 1) and have an overall replacement cost of \$49.8M. Equipment within these facilities (Table 2) are used to provide services to the general public and they range from pumps, tractors and docks. This equipment has a current year replacement cost of \$28.8M.

Table 1
Useful Lives by Facility Component

Component	Useful Life (Years)
Structure	60 years
Roof	10 to 25 years
Windows and Doors	10 to 20 years
Interior Finishes	10 to 30 years
Fire Suppression Systems	10 to 50 years
Plumbing	15 to 25 years
HVAC	15 to 25 years
Electrical	15 to 40 years
Parking Lots	30 years

Table 2
Useful Lives by Equipment

Component	Useful Life (Years)
Docks	25 years
Graders and Large Equipment	10 to 20 years
Landscaping Equipment	10 to 25 years
Refrigeration Plant	20 years
Fire Rescue and Emergency Equipment	10 to 20 years
Fuel Distribution System	25 years
Water Treatment Equipment	10 to 50 years
Wastewater Treatment Equipment	10 to 50 years

In 2018 the Town completed a facility condition assessment (FCA) on all of the 41 facilities. Using this information an extended facility condition index (FCI) has been calculated for each facility. The extended FCI is the 10-year forecasted deficiencies over the replacement cost. Staff have chosen to use the extended FCI as it lines up with the 10-year Lifecycle Cost that is required under O.Reg 588/17. Table 3 outlines the FCI Ratings

Table 3
Facility Condition Index Ratings

Ratings	Metric
1 – Very Poor	61% +
2 – Poor	41% to 60%
3 – Fair	21% to 40%

Ratings	Metric
4 – Good	0% to 20%

To determine the facility equipment condition, the age and its estimated useful life was used. Table 4 outlines the equipment rating system.

Table 4
Equipment Condition Ratings

Ratings	Metric
1 – Very Poor	0% to 25%
2 – Poor	26% to 50%
3 – Fair	51% to 75%
4 – Good	76% to 100%

Plan Structure

The structure of this plan is in alignment with O.Reg 588/17. This was done so that the Town can include this piece in the final Asset Management Plan that will include all asset classes. This plan includes the following sections:

1. State of Infrastructure –Facilities and Equipment;
2. Current Levels of Service and Performance;
3. Lifecycle Model; and
4. Population and Economic Activity.

State of the Infrastructure

Facilities

The following tables look at each facility and the basic information collected through the Facility Condition Assessment and done in accordance with O.Reg 588/17:

- i. Facility;
- ii. Replacement Cost;
- iii. Age of the Facility (years);
- iv. Extended Facility Condition Index; and
- v. Funding Stream.

Table 5

Facilities included in this Asset Management Plan

Community Services	Replacement Cost	Age	FCI	Funding Stream
Bayview Park Washroom	\$45,000	18	24%	Tax
Beaver Valley Arena	\$6,329,000	28	11%	Tax
Beaver Valley Community Hall	\$2,340,000	34	15%	Tax
Cedar Grove Operation Centre	\$219,000	60	42%	Tax
Cedar Grove Washroom	\$124,000	29	27%	Tax
Craigeleith Community Hall	\$362,000	157	45%	Tax
Craigeleith Heritage Depot	\$259,000	139	65%	Tax
LE Shore Memorial Library	\$2,755,000	26	15%	Tax
Little River Park Washroom	\$109,000	29	20%	Tax
Nipissing Ridge Park Washroom	\$61,000	8	14%	Tax
OPP Detachment	\$875,000	12	15%	Tax
Ravenna Hall	\$709,000	149	37%	Tax
Tomahawk Golf Course Shop	\$135,000	10	9%	Tax
Tomahawk Operations Centre	\$506,000	11	56%	Tax
Town Hall	\$14,766,000	10	3%	Tax
Union Cemetery Chapel	\$36,000	87	167%	Tax

Fire	Replacement Cost	Age	FCI	Funding Stream
Fire Hall #1 - Thornbury	\$3,008,000	20	8%	Tax

Fire	Replacement Cost	Age	FCI	Funding Stream
Fire Hall #2 - Craigleith	\$1,936,000	31	15%	Tax

Operations	Replacement Cost	Age	FCI	Funding Stream
Road Department Works North Shop	\$475,000	35	83%	Tax
Road Department Works South Shop	\$367,000	61	75%	Tax
Landfill Operations Centre	\$264,000	4	20%	Tax
Scale House	\$56,000	4	71%	Tax

Harbour	Replacement Cost	Age	FCI	Funding Stream
Harbour Office	\$310,000	31	20%	Harbour
Harbour Shower Building	\$447,000	30	37%	Harbour

Wastewater	Replacement Cost	Age	FCI	Funding Stream
Craigleith Main Sewage Lift Station	\$371,000	35	53%	Wastewater
Craigleith Wastewater Treatment Plant	\$5,171,000	36	9%	Wastewater
Delphi Sewage Lift Station	\$111,000	15	18%	Wastewater
Elgin Sewage Lift Station	\$55,000	42	35%	Wastewater
Lake Shore Sewage Lift Station	\$277,000	15	4%	Wastewater
Mill Street Sewage Lift Station	\$311,000	29	33%	Wastewater
Moore Sewage Lift Station	\$53,000	42	42%	Wastewater
Sunset Sewage Lift Station	\$171,000	13	29%	Wastewater
Thornbury Wastewater Treatment Plant	\$1,470,000	27	22%	Wastewater

Water	Replacement Cost	Age	FCI	Funding Stream
10th Line Booster Pump Station	\$340,000	14	34%	Water
Arrowhead Road Booster Pump Station	\$222,000	37	47%	Water
Camperdown Court Booster Pump Station	\$56,000	40	8%	Water
Camperdown Road Booster Pump Station	\$370,000	14	28%	Water
Happy Valley Booster Pump Station	\$120,000	15	19%	Water
Thornbury Reservoir & Booster Station	\$431,000	14	23%	Water
Ward Road Booster Pump Station	\$55,000	32	17%	Water
Water Operation Centre	\$648,000	34	51%	Water
Water Treatment Plant	\$3,045,000	42	6%	Water

Total of All Facilities	\$ 49,770,000
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Map 1 of the appendix includes all facility locations and the corresponding condition.

The average age of Town owned facilities is 36 years old; this number is skewed because of the four historical facilities that are still in use today: Ravenna Hall, Craigleith Heritage Depot, Craigleith Community Centre, and the Union Cemetery Chapel. If you remove those outliers the average age comes down to 26 years old, which is relatively new for facilities. The average extended FCI of these facilities is 14%. Chart 1 looks at the number of facilities in 10-year age brackets.

Chart 1

Facilities by Age

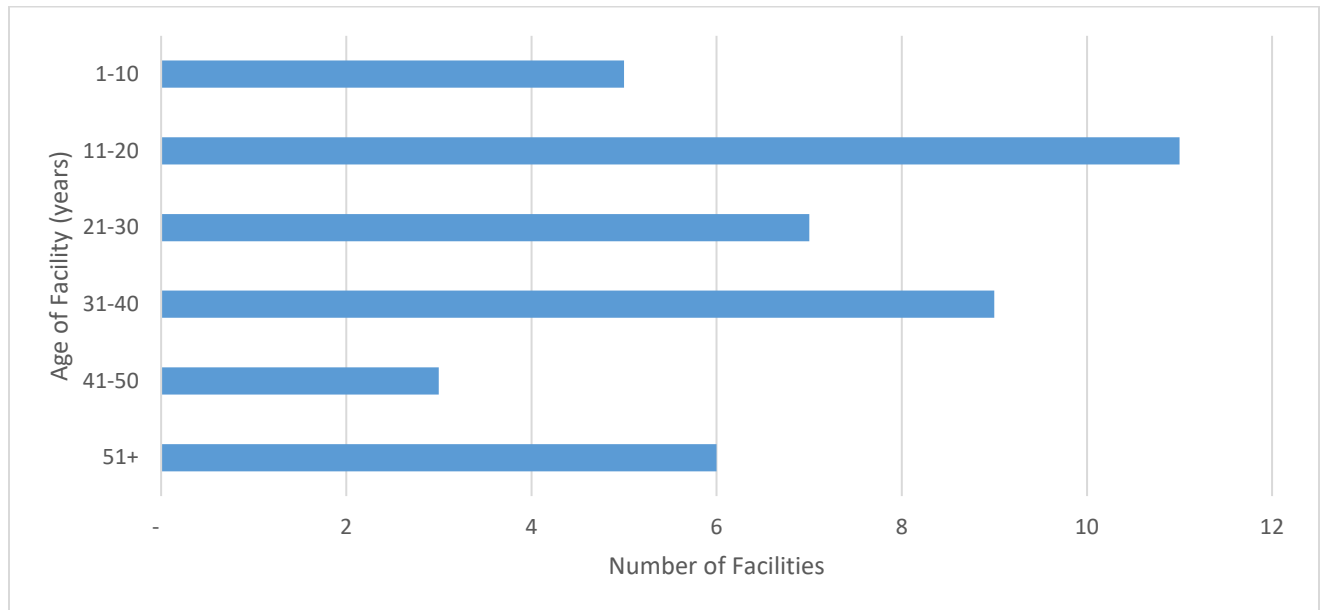
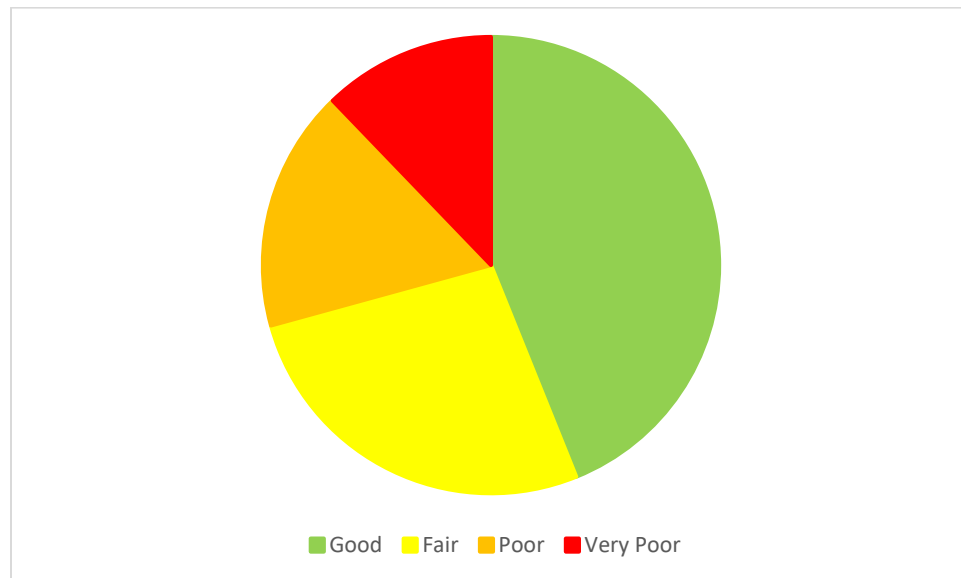


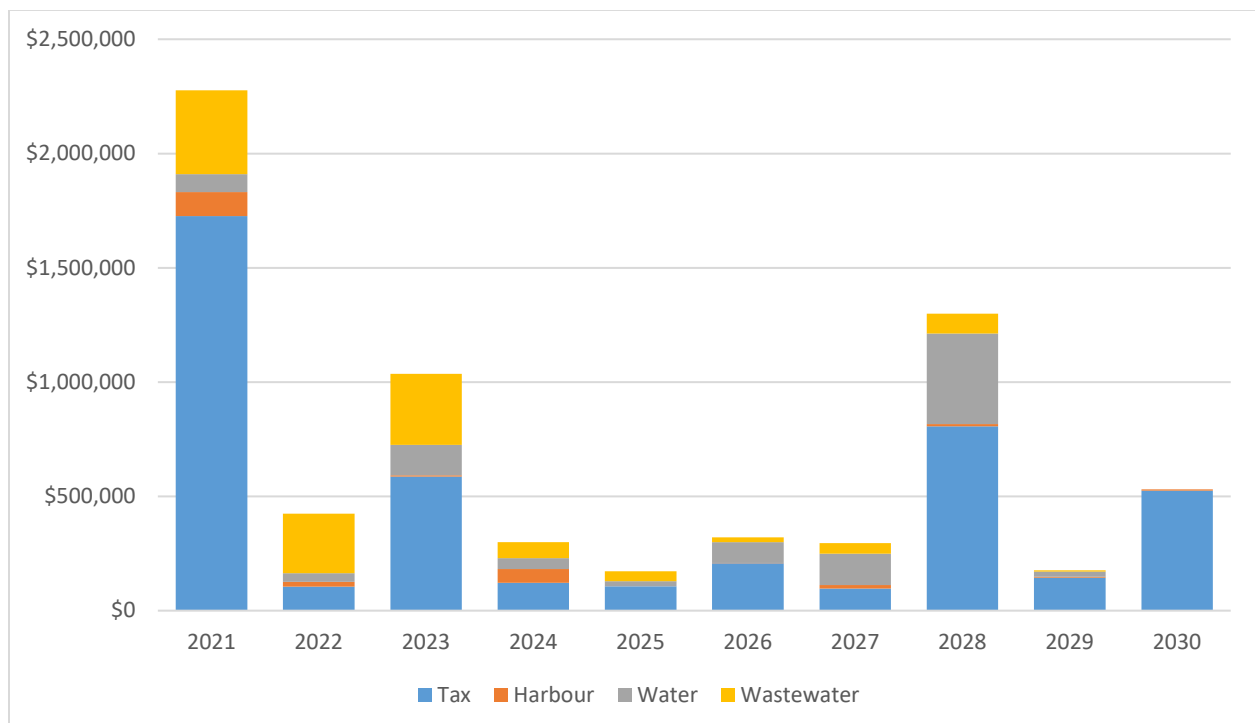
Chart 2 looks at the number of facilities within each Facility Condition Rating Category.

Chart 2
Facilities by Facility Condition Index



Overall Town facilities are in *Good* condition with a little over a third of the facilities being either Poor or Very Poor. Although the majority of facilities are in a good condition, the FCAs identifies a number of recommended work required within these facilities. Chart 3 looks at the cost of all of the recommended works over the next 10-year period by funding stream. Over that period the Town is looking at over \$6.8M on more than 400 recommended actions in repairs and maintenance to the facilities.

Chart 3
Recommended Costs by Year by Funding Stream



Part of the requirements under O.Reg 588/17 is that the Town outline what criteria was used to establish the conditions for the different asset classes. For the Facility Condition Assessments, the Town required the contractor to use the following generally accepted practices:

- Ontario Building Code;
- Occupational Health and Safety Act;
- ANSI/ASHRAE/IES 90.1-2013;
- ASTM E2018-08 Standard Guide for Property Condition audits; and
- ASTM E1557-09 Standard Classification for Building Elements and related Siteworks (Uniformat II).

Equipment

The following tables look at the equipment owned by the Town and the basic information collected and compiled in accordance with O.Reg 588/17:

- i. Equipment;
- ii. Replacement Cost;
- iii. Age of the Equipment (years);
- iv. Equipment Condition Index; and
- v. Funding Stream.

Table 6

Equipment included in this Asset Management Plan

Community Services	Replacement Cost	Age	Condition	Funding Stream
Mower	\$21,000	16	20%	Tax
Mower	\$21,000	10	5%	Tax
Mower	\$21,000	10	33%	Tax
Mower	\$18,000	5	50%	Tax
Mower	\$19,000	10	60%	Tax
Mower	\$32,000	4	60%	Tax
Mower	\$31,000	2	80%	Tax
Mower	\$18,000	1	90%	Tax
Mower	\$17,000	1	90%	Tax
Olympia Millennium	\$80,000	3	70%	Tax
Refrigeration Plant	\$175,000	10	50%	Tax
RTV	\$26,000	10	5%	Tax
RTV	\$26,000	4	60%	Tax
Tractor	\$40,000	22	12%	Tax
Tractor	\$26,000	19	5%	Tax
Tractor	\$45,000	13	13%	Tax
Tractor	\$65,000	6	70%	Tax

Operations	Replacement Cost	Age	Condition	Funding Stream
Backhoe	\$180,000	0	100%	Tax
Backhoe	\$180,000	8	20%	Tax
Champion Grader	\$440,000	28	30%	Tax
Compactor	\$617,000	5	67%	Tax
Roads - Other Equipment ¹	\$168,000	6	60%	Tax
RTV	\$26,000	4	60%	Tax
Tractor	\$191,000	10	33%	Tax
Volvo Grader	\$440,000	17	15%	Tax
Volvo Grader	\$440,000	0	100%	Tax
Wheel Loader	\$211,000	3	80%	Tax

¹Pooled Asset

Fire	Replacement Cost	Age	Condition	Funding Stream
Hydraulics	\$60,000	13	13%	Tax
Air Fill Station	\$260,000	17	15%	Tax
Other	\$175,000	6	40%	Tax
Bunker Gear ¹	\$355,000	6	40%	Tax

¹Pooled Asset

Harbour	Replacement Cost	Age	Condition	Funding Stream
A Dock	\$197,000	8	68%	Harbour
B Dock	\$121,000	11	56%	Harbour
C Dock	\$172,000	10	60%	Harbour
Concrete	\$59,000	9	64%	Harbour
D Dock	\$143,000	9	64%	Harbour
E Dock	\$196,000	13	48%	Harbour
F Dock	\$139,000	12	52%	Harbour
G Dock	\$191,000	7	72%	Harbour
H Dock	\$151,000	14	44%	Harbour
I Dock	\$95,000	6	76%	Harbour
J Dock	\$7,000	11	56%	Harbour

Water	Replacement Cost	Age	Condition	Funding Stream
MCC Panels	\$241,000	18	28%	Water
Water -Other Equipment ¹	\$383,000	12	40%	Water
Pall Membrane Filter Trains	\$1,701,000	12	76%	Water
PRVs ¹	\$200,000	30	5%	Water
Pumps ¹	\$486,000	18	40%	Water
SCADA ¹	\$633,000	16	20%	Water
UV Equipment ¹	\$275,000	16	36%	Water
Valve Maintenance Trailer	\$121,000	2	87%	Water

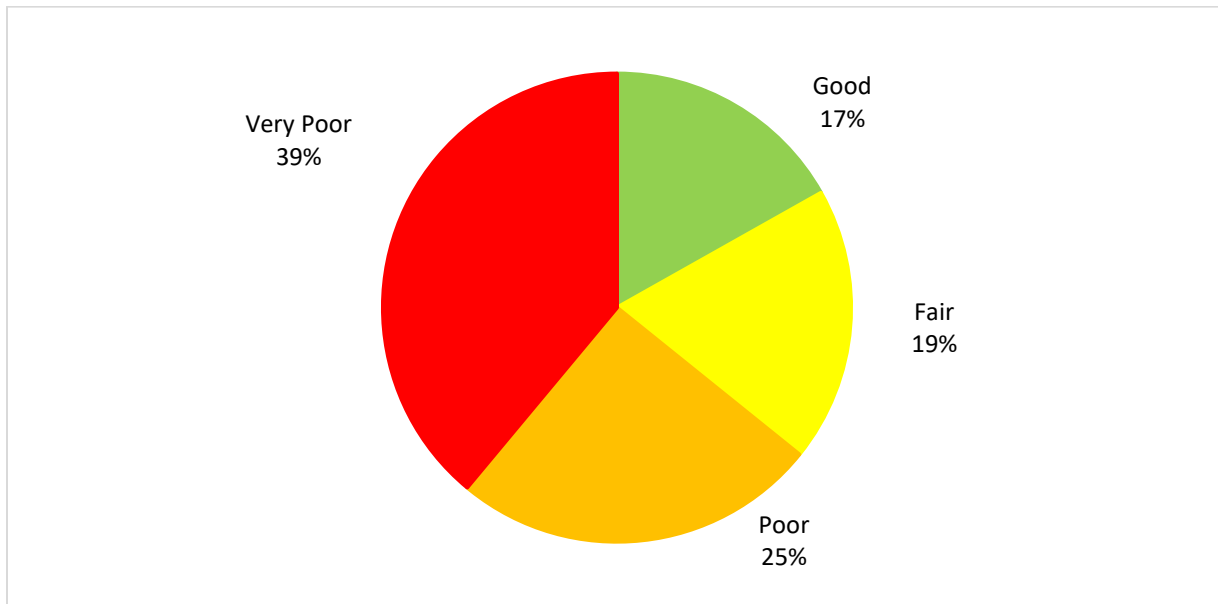
¹Pooled Asset

Wastewater	Replacement Cost	Age	Condition	Funding Stream
Aeration Tank 1	\$1,142,000	29	42%	Wastewater
Aeration Tank 2	\$1,142,000	29	42%	Wastewater
Blower 1	\$100,000	35	5%	Wastewater
Blower 2	\$100,000	35	5%	Wastewater
Blower 3	\$100,000	35	5%	Wastewater
Channel Grinder	\$128,000	7	53%	Wastewater
Clarifier 1	\$185,000	5	75%	Wastewater
Clarifier 2	\$185,000	4	80%	Wastewater
Clarifier 3	\$215,000	18	40%	Wastewater
Clarifier Drive 1 (North)	\$109,000	29	12%	Wastewater
Clarifier Drive 2 (South)	\$109,000	29	12%	Wastewater
Craigleith SLS Pump 1	\$100,000	35	5%	Wastewater
Craigleith SLS Pump 2	\$100,000	35	5%	Wastewater
Digester 2	\$490,000	35	5%	Wastewater
Digester Building 2 Blower 5	\$125,000	18	49%	Wastewater
Digester Building 2 Blower 6	\$125,000	18	49%	Wastewater
Digester Building 2 Blower 7	\$100,000	18	49%	Wastewater
Dry Well	\$918,000	29	5%	Wastewater
Effluent Dry Well Tank	\$286,000	35	5%	Wastewater
Effluent Pump Valving	\$245,000	35	5%	Wastewater
Filter 1 MCC	\$175,000	5	83%	Wastewater
Filter 2 MCC	\$175,000	5	83%	Wastewater
Filter 3 MCC	\$175,000	5	83%	Wastewater
Filter 4 MCC	\$175,000	5	83%	Wastewater
Grit Tanks	\$245,000	35	5%	Wastewater
High Gate Valves	\$141,000	35	5%	Wastewater
Hold Tank 1	\$1,367,000	18	40%	Wastewater
Hold Tank 2	\$1,367,000	18	40%	Wastewater
Other ¹	\$324,000	15	25%	Wastewater
Pumps ¹	\$1,000,000	15	25%	Wastewater
SCADA ¹	\$760,000	17	15%	Wastewater
Sewage Pump #1	\$155,000	15	25%	Wastewater
Sewage Pump #2	\$155,000	15	25%	Wastewater
Side Screens	\$120,000	29	12%	Wastewater
SLS Dry Well	\$1,333,000	35	5%	Wastewater
Structure wet well	\$1,530,000	35	30%	Wastewater
Teacup Grit Collector	\$105,000	29	12%	Wastewater
Transfer Tank 1	\$128,000	18	40%	Wastewater
Transfer Tank 2	\$128,000	18	40%	Wastewater
UV Unit	\$378,000	3	88%	Wastewater
UV Unit	\$595,000	3	88%	Wastewater
Valves ¹	\$686,000	17	15%	Wastewater
Wet Well -Mill Street	\$490,000	29	5%	Wastewater
Wet Well - Moore Crescent	\$140,000	23	8%	Wastewater
Wet Wells ¹	\$708,000	24	5%	Wastewater

¹Pooled Asset

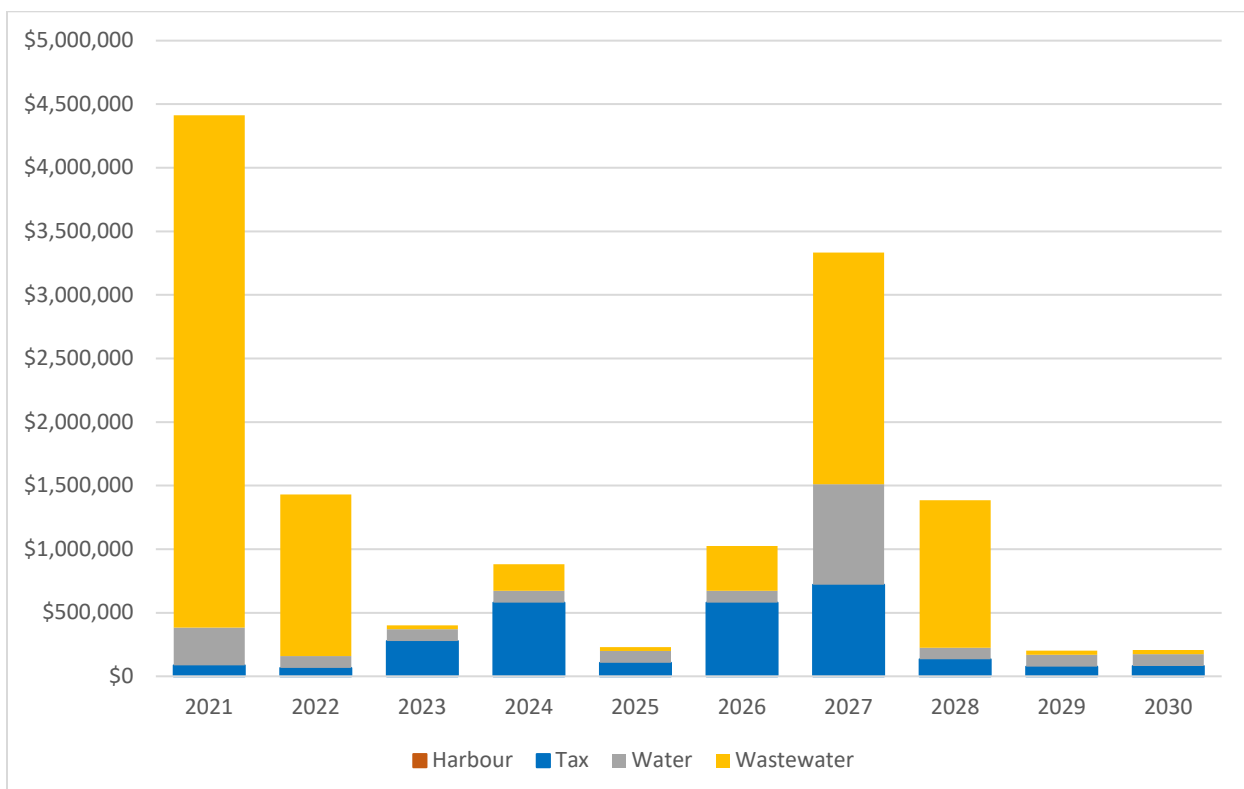
Total of All Equipment	\$ 28,494,000
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Chart 4
Equipment by Condition



Overall, almost 40% of the Town's equipment is in Very Poor condition and will require replacement within the next 2 to 3 years. The condition for equipment is based solely on age and useful life therefore this situation isn't unusual as most equipment has a useful life of 15 to 25 years. When looking at a 10-year horizon most equipment will be replaced during that time period.

Chart 5
Recommended Costs by Year by Funding Stream



The Town is looking at some significant equipment replacements costs over the next 10-years, currently valued at \$13.5M with two-thirds (\$9M) being for the Wastewater Department. This is due to the major equipment from the two Wastewater Treatment Plants reaching the 25 to 30-year life expectancy.

Current Level of Service

The first asset management plan as dictated by the O.Reg 588/17 starts with the current level of service that the Town is offering for this asset class. For facilities and equipment the regulation does not make reference to mandatory metrics, as it does with linear infrastructure, so the Town must compile a set of metrics for this asset class. Staff have compiled the following metrics. Some of these are Town specific while others are industry suggested.

Facilities

- Facility Condition Index per facility
- Average Facility Condition Index
- Number of Outdoor Recreation spots with a permanent public washroom structure
- Portion of the properties that are within a 5km radius from:
 - Community Centre
 - Town Hall
 - Fire Hall
 - Police Station
 - Library
- Closure of the Facility

The Facility Condition Index by facility is included in Table 5 and illustrated in Chart 2. Of the 41 facilities, 13 (or 32%) are considered in *Good* condition, 10 (or 24%) being in Very Poor condition and the remaining 18 being in either *Fair* or *Poor* condition.

The average extended Facility Condition Index is 14%, meaning the overall facility condition rating is Good. Relying on the Facility Condition Index to set the level of service offered by the Town for its facilities, the current level of service is to keep the 41 facilities in *Good* condition.

A few qualitative metrics for the Town to measure facilities are the number of permanent public washrooms servicing outdoor recreation areas as well as the percentage of properties within a 5km radius of different community hubs.

The Town owns 26 outdoor recreation areas, which include passive open space, athletic fields, developed parks and waterfront properties. Of these 26 properties, eight (30%) are serviced with a permanent washroom facility while the remaining 18 (70%) either have portable washrooms or are not serviced at all. Through the 2021 Approved Capital Budget, an additional permanent washroom facility is being added at the Moreau Park location. This changes to split from 30/70 to 35/65.

The last metric to establish the Town's current level of service is the percentage of the properties that are within a 5km radius of community hubs. Table 6 contains this information. Map 2 of the appendix shows the facilities and 5km radius.

Table 6
Properties within 5kms

Facility	Number of Properties	Percentage of Total Properties
Town Hall	2,224	22%
Beaver Valley Community Centre	2,249	22%
Ravenna Hall	443	4%
Craigleith Community Centre	2,772	27%
LE Shore Memorial Library	2,248	22%
Craigleith Heritage Depot	2,768	27%
OPP Detachment	2,201	22%
Fire Hall #1	2,191	22%
Fire Hall #2	2,716	27%

By establishing the Current Level of Service offered by the Town for the condition and number of facilities the Lifecycle cost of each facility can be determined.

A final qualitative criteria is if a facility has to be closed due to the failure of a facility asset, due to roof leaking, etc., then that facility will automatically be considered *Critical* and staff will bring forward a report to Council outlining options to get the facility opened and the service restored.

Equipment

Like Facilities, O.Reg 588/17 does not include any mandatory metrics for equipment so staff have compiled a list of metrics that will help establish the level of service being offered for the various asset classes.

- Average Condition Index
- Average Age of the Equipment
- Level of Service interruption

The average condition index for the Town's equipment is 48 or Poor.

The average age of the Town's equipment is 13 years.

There are currently no services that are not being offered or being offered below the normal level due to equipment failure. If this were to happen the equipment repair/replacement would be immediately addressed to return the service to the appropriate level. An example of this would be the Olympia being inoperable and the arena having to close until it was repaired or replaced.

Lifecycle Costs

As per O.Reg 588/17 a 10-year lifecycle cost must be calculated for the asset category to maintain the current level of service that has already been established. For the purposes of the Facilities and Equipment two expense streams have been created. The first expense stream is for the Annual expenses such as Hydro, Water, Gas and Insurance. The second is for the Annual Transfer to the various reserve funds to fund the required capital replacement/rehabilitation of the facilities and equipment.

Table 7
10 Year Lifecycle Costs

Department	Annual Costs	Annual Transfer	Total
Community Services	\$5,999,000	\$3,695,000	\$9,694,000
Fire	\$1,000,000	\$1,290,000	\$2,290,000
Roads and Drainage	\$4,335,000	\$2,070,000	\$6,405,000
Solid Waste	\$1,555,000	\$812,000	\$2,367,000
Harbour	\$385,000	\$1,027,000	\$1,412,000
Water	\$6,187,000	\$5,248,000	\$9,105,000
Wastewater	\$6,861,000	\$8,880,000	\$15,741,000
Total	\$26,322,000	\$23,022,000	\$49,344,000

The Annual Costs included above are funded through the appropriate department operating budgets and are funded accordingly. For the Harbour, Water and Wastewater the users of those services are funding the annual costs through user-fees. The Annual Transfers are funded similarly and are transferred into the appropriate reserve funds and are made available to fund the annual capital budgets for these assets.

Funding capital expenditures through a reserve fund model is the simplest approach as it allows the annual transfer to remain consistent even while the capital program being funded can see large swings. This model helps keep budgeting simpler and does not see large swings in annual user-fees/taxation to fund a highly volatile capital program.

Table 8 looks at the required annual transfer and the current transfer as per the Approved 2021 Budget. It should be noted that most transfers are responsible for more than one asset type; for example, Fire has the facilities, equipment and fleet.

Department	2021 Transfers	Annual Transfer
Community Services Asset Replacement ¹	\$156,000	\$56,000
Facility Asset Replacement ¹	\$82,000	\$314,000
Fire Asset Replacement	\$288,000	\$129,000
Roads and Drainage Asset Replacement	\$482,000	\$207,000
Solid Waste Asset Replacement	\$77,000	\$81,200
Harbour Reserve ²	\$48,155	\$103,000
Water Asset Replacement	\$1,540,882	\$525,000
Wastewater Asset Replacement	\$1,076,471	\$888,000

¹The Community Services Annual Transfer of \$3,695,000 as per Table 7 is split between the Community Services Asset Replacement Reserve Fund and the Facility Asset Replacement Reserve Fund.

²The Harbour transfer is calculated using the Draft Harbour Financial Plan, as per that plan once the current long-term debt for the last dock replacement is paid off in 2033 the amount included in the annual Harbour budget for the principle repayment will be added to the transfer.

Population and Economic Activity

Included in the Town's newest Development Charges Background Study is a residential and non-residential population growth forecast for the next 10-year period. The current population (as of 2018) was 6,897 which is projected to increase to 9,777 by the year 2028. In addition the Town is projected to increase employee square meters by 17,408 or 348 employees in that same time period.

With this increase comes an increased demand on Town services. Included in the background study is the following facility expansions to keep the level of service the same as the demand increases:

- 10,000 ft² for the Blue Mountains Public Library;
- 4,000 ft² for Fire Services;
- Indoor Recreation Space (multiple partners);
- 1,000 ft² for Parks and Recreation Services;
- 11,400 ft² for Roads and Drainage;
- 3,000 ft² for a Roads and Drainage satellite office; and
- 100 ft² for an additional Scale House at the Landfill Site.

Using the values calculated in the Lifecycle section of this asset management plan a square foot cost including both Annual costs and repairs and maintenance cost has been calculated for each of the above proposed additional facilities or expansions. Table 9 outlines the expected annual costs and what the required annual transfer to reserve funds would be once these facilities are built and operating.

Table 9
Annual Lifecycle Costs

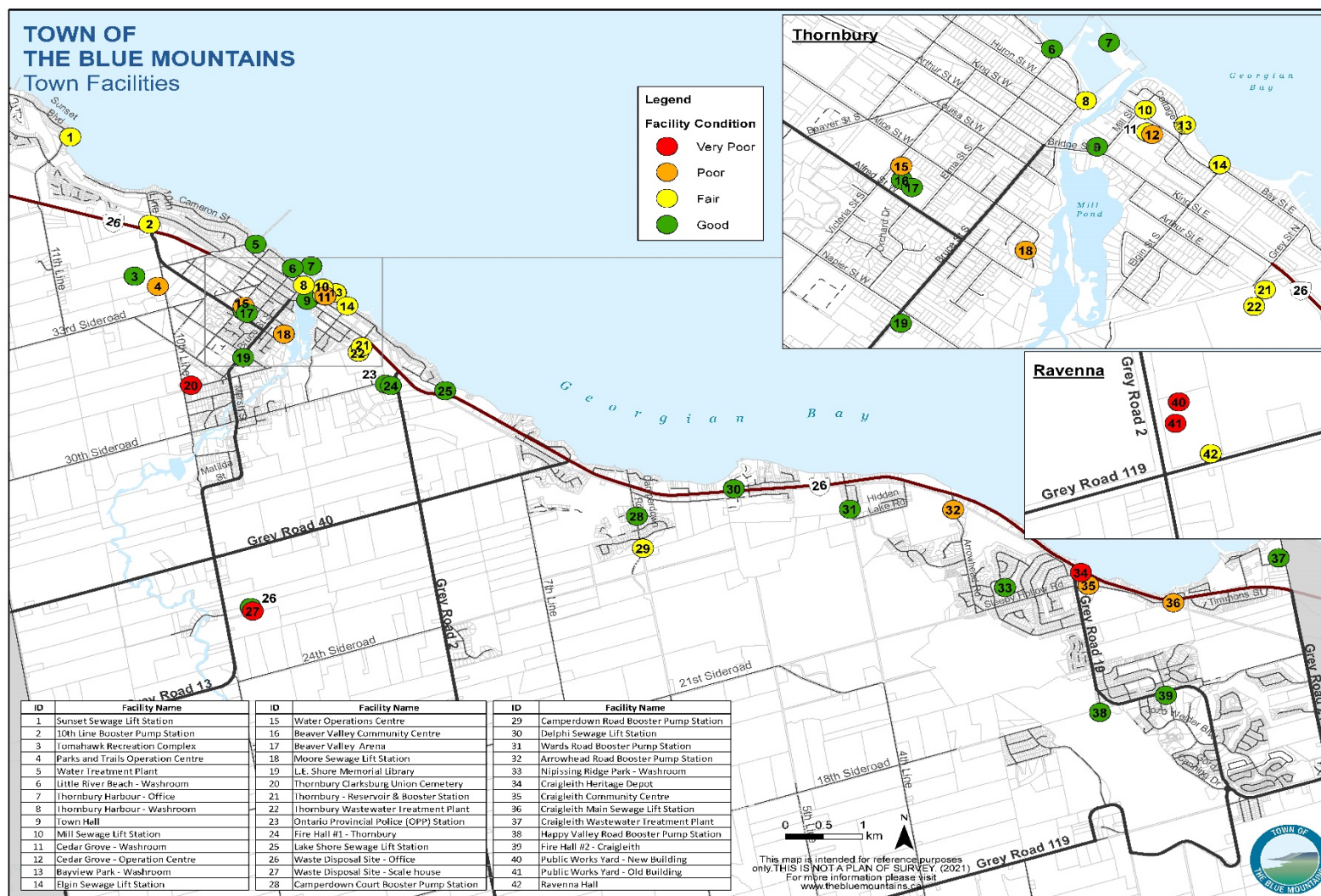
Facility	Annual Cost	Transfers Increase	Total Annual Cost
Blue Mountains Public Library	\$ 23,000	\$ 18,000	\$ 40,960
Fire Services	\$ 7,300	\$ 5,900	\$ 13,200
Indoor Recreation Space ¹	\$ 102,000	\$ 60,200	\$ 161,510
Parks and Recreation Services	\$ 2,500	\$ 800	\$ 3,170
Roads and Drainage	\$ 74,480	\$ 45,500	\$ 119,980
Roads and Drainage satellite office	\$ 3,140	\$ 12,000	\$ 15,140
Additional Scale House at the Landfill Site	\$ 350	\$ 1,700	\$ 2,050
Total	\$ 211,910	\$ 144,100	\$ 356,010

¹The Indoor Recreation Space was calculated using the Beaver Valley Arena as the bases.

All of the services listed above are taxation funded and therefore the \$356,010 will be funded from the taxation levy or additional revenues as these facilities come on-line.

Appendix

Map 1
Facility Conditions



Map 2
Properties within 5kms

